

kable Accident usually happening at those Seasons.) Of these different Seasons at *Chepstow bridge* from those of *Rumney-Marsh*, I gave you my remarks in a Letter of mine to you in *March* following. And the like differences, I suppose, will be observable on other Coasts, according as their positions be advantageous or disadvantageous to the one or the other of the two Causes, on which this *Phænomenon* depends. But since it is not yet (it seems) agreed, Whether such an *Annual* Phænomenon do happen; or, if so, not at that time; (so that, for ought yet appears, it may be at the Seasons I design, that is, between the Winter-Solstice and the two *Æquinoxes* on either side of it; though, on several Coasts, severally remote,) I think it best to let this part of the *Hypothesis* stand as it is, unrevoked, as that, which, when it shall be discovered and agreed on, stands ready enough to give a rational account of it, and, in the mean time, does no hurt. And in such a Complication of Causes so abstruse, scarce any thing but Observation will determine, which of the Causes, and in what degree, is to be Judged prædominant.

And if to this of the *Sun's* or *Earth's*, be added that of the *Obliquity* and *Excentricity* of the *Moon's* *Orbite* (of which, for the reason above-mentioned, I had taken so little notice,) it will, if it do no good, at least do no hurt. And I the rather think, it may be considerable, because the Earth and Moon's Appropinquation and Elongation, doth really alter the Distance of the *Common Center of Gravity* (of the Earth and moon) from the Earth (rendering the Earth's *Epicycle* Elliptical;) and much favors what *M. Childrey* observes of the Moon in *Perigæo*. And this is the sum of what I thought proper to return you, upon those Animadversions, being, &c.

An Account of some Books.

- I. *DISSERTATIONES MEDICÆ TRES: 1. De Causis fluxûs Menstrui Mulierum. 2. De Sympathia variarum Corporis partium cum Utero. 3. De Usu Lactis ad tabidos reficiendos, & de immediato Corporis Alimento.* Auth. Francisco Bayle, Doct. Medico. Tolosæ, 1670. in 4°.

THis Ingenious Author to prepare his Reader to a candid reception of these Discourses, represents in the Preface, how much mischief and prejudice hath been done to knowledge both by

by intemperate and blind Love of Novelty, *and* by a sullen and servile addiction to bare Antiquity ; and esteems him to be truly wise, who neither admits Falsities upon the sole account of being Ancient, nor excludeth Truths because of Novelty, but giveth honor to the Fathers of Sciences, with safety to Truth, as *the* thing which the authority both of the Ancients and Moderns ought to stoop to. Upon which ground he proceeds, sometimes dissenting from *Galen* in these Essay's alledging, *that* Authors own advise and practise for so doing ; and deploring the unhappiness of the state of Physick because of the too great fervility of adhering to former attainments. Having premised this, he doth in the

First Dissertation examine and reject the opinion of *Galen* and others concerning the Periodicalness or Stated returns of that *Flux* ; esteeming, that that Author and his Followers do only discourse of what is obvious in this Argument, and leave that unexplained what is not so ; as, from what cause, by what organs, and why at stated times that Evacuation is raised and performed. And having shew'd, that the common Doctrine concerning this Effect in Women contains nothing, which may be acquiesced in, he proceeds to declare and prove his opinion concerning the same, *viz.* That, as in the Earth (the fruitfull womb of all Seeds of Plants,) so in all the Wombs of Animals, fit for Conception, there concur chiefly three things: A benigne Heat to cherish ; a due Fermentation to agitate and dilate; and a due portion of Moisture, to enter with ease into the passages open'd by that Fermenting motion. This he maketh out both in Oviparous and Viviparous Animals, and teacheth, that the blood being agitated and rarified by that Effervescence, swells and opens the vessels, and breaks out into a Profluvium ; *Dumque hoc fervore dilatatur uterus, aperiuntur viæ inconspicuæ, quibus semen masculinum interius excipitur, quippe quod non hæret in uteri cavitate (in qua Harvæus & alii illud frustra quæsiwere) sed in ipsius substantiam imbibitur, ubi feminei seminis permutatione turgescit, & radices agit, quibus delatum per apertos fervore meatus succum nutritivum accipit: deinde, ut in Terra solent Plantarum semina, caulem profert carneum, Placentam scil. uterinam, ex qua fructus instar erumpit Ovum, cui ex germine, liquamini innatante, adnascitur alia planta mox migratura in animal, tandem in hominem, si ex humano semine fuerit excitata.*

After this, he inquireth into the Cause of that Incalescence, and its Periodical vicissitudes ; as also, why 'tis found in

Mulieribus & Si. Agis, cum Equæ, Canes, Vacca, &c. non nisi serofum quid idque paucum ab illo uteri fervore profundant. The Cause of this Fervor he maketh to be a Nitrous Salt collected in the Body. The reason of the Periodical returns he assigns to be this, that the *Uterus*, like the Earth, having been throughout fermented and dilated by the nitrous particles and the orifices of the *Tubuli*, which pass into the cavity of the same, opened, the attenuated blood rusheth into it, *indeque foras effunditur. Vbi verò sanguis libere fluit, collectum fermentum abstergit quemadmodum aqua è Terra, quam abluit, Nitrum ejicit.* Restituito deinde in statum pristinum *Utero* idem fermentum colligitur eodem modo quo prius, & nò quid obstat, spatio aquali, pari quantitate congestum, & ad similem exaltationem evectum; novam efficit in *Utero* fermentationem. And this is to our Author the cause of that constant Circuit: For the Illustration of which, he delivers many particulars concerning the collection of Salt in the *Uterus*, and its Fermentative power, and the Fecundity of *Egyptian* Woemen by reason of their drinking the Nitrous water of the Nile, &c. To which he annexes an accompt, *Quare ab Uteri Fervore pleræque Animantes tantum serofum quid & paucum, Mulieres verò sanguinem profundant? Quare etiam illæ periodi in aliis Mulieribus sint longiores, in aliis breviores? Ex quo fonte Menstrua purgationes supprimantur, vel perperam procedant? Quæ mulieres careant Menstruis sine noxa, & quàm vegetum robur, quantâq; vitæ longævitas inde consequatur? Quænam immodica vacationis Causa? &c.*

In the second Dissertation concerning the Consent of many parts of the Body with the Womb, he first declareth, that he understands by this Consent, nothing else, but that the parts are at once affected together from one part principally affected, and communicating that affection to others. Then having exploded the common opinions touching the Causes of this Sympathy, he offers his own, *viz.* the Vicinity of the parts, and the Community and structure of the Vessels, by which the vitiated liquors of the body being conveyed from one part to another, may there excite the same or different affections. But because this way of Sympathising by vessels hath many considerable and un-obvious varieties, he takes pains to examine them at large and to give a Scheme of the whole Oeconomy of the Body of the perfecter Animals, considering the diversity and various uses of the Vessels, and the necessity of Motion and Sense, depending from the Brain, the Animal Spirits, and the System of the Nerves, which, being dispersed through the whole Body,

Body, cannot but produce this Consent of parts: For the clearer Explication of which, he gives an Accompt of the Order and Dependency of the Vessels, by which the various Juices are distributed through the Body; and from all these together, (taking in the *Structure* of the parts) he deduceth *first* in *General*, the manner, How any one part, being affected, communicateth its affection to others; and then in *Particular*, How the Scituation, and the Connexion of the *Womb*, with other parts, is subject to produce the like effects: Where he expatiateth to declare, How that from the depravation of the Uterine ferment and blood, so many, so various, and so horrid Diseases and Symptoms arise: To all which he adds the solution of these two Questions; 1. Why Sweet smells raise Hysterique passions; and foetid ones, remedy the same? 2. Why there is so special a consent of the Womb with the Breasts? Concerning both which we refer the Reader to the Author himself, and proceed to the

Third Dissertation, in which he inquires, Whence it is, that *Milk* is the best Aliment of the Body? And to satisfy this Inquiry; he presupposeth, that the proxime nourishment is to be as like as may be to the Body to be nourish't, and that we subsist by the same things, of which we are generated, and that the Fœtus is fed in the womb, not with Blood, but a Milky Juice, taken in at the Mouth, and sever'd from the Blood in the *Uterus* by the *Placenta*, as a Strainer; as 'tis in the *Breasts* by the Glanduls and Tubes designed for the same purpose. And having concluded thereupon, that Meats do not nourish before they are converted into a Milky liquor; he Analyseth Milk, and finding, that its fatty, terrestrial, and serous parts may be easily mixed, separated again, and made a fit matter for the different parts of the Body, the Serous part thereof (which is also Nitrous) being a very proper Vehicle to convey it thorough the vessels; he infers; that it is the most convenient Food, not for Children only, but for Grown people also. But because he was aware of divers Objections against this Doctrine, especially those two, that are taken from the double Principle of our Generation, the Blood, and the Genital seed; and from the two sorts of Parts of the Body, Spermatick and Sanguineous: He endeavors to remove both, as may be seen in the Book it self; where do occur sundry curious and considerable Anatomical Observations and Experiments, grounded upon the Learned Dr *Whartons* Book of *Glanduls*, and proving, that the

Maternal Bloud is neither the matter of the Aliment of the *Fetus*, nor that, of which it is first formed: all which is illustrated and confirmed from the *Phænomena* in *Oviparous* Animals, whose young ones, bred in Eggs, receive no bloud at all from their Dams.

But as to the successive Changes made in Meats, fit for Nutrition and the production of various Juices; he represents them thus: After that the *Chyle*, produced out of meat and drink in the stomach, hath passed to the Heart, then the finest and most Spirituous parts thereof are changed into the red part of the Bloud; such portions as are disposed next, are turned into Bile, and other humors; the remainder is by iterated fermentations with the Bloud in the Heart further digested, and perfected, and by being in many places percolated, and leaving behind its serosity, acquireth a glutinous and fibrous nature, like Milk, fittest for Nutrition.

So that he concludes upon the whole, That there being no part of the Body, which is not generated of the Seed, and consequently the Seminal matter being the nearest Aliment of the same, and nothing, of things outwardly taken in, having a greater cognation with it, than Milk, this Liquor is to be esteem'd the best Aliment, and the properest to repair tabid and decayed Persons.

II. *HISTORIÆ GENERALIS INSECTORUM*, Jo-
hannis Swammerdani, *Pars prima*. Ultrajecti A. 1669. in 4°.

THis Curious and Philosophical Book, written in the *Belgick* Tongue, treateth chiefly of these three things.

First, It lays down the Ground of all Natural *Changes* in Insects; declaring, that by the word *Change*, is nothing else to be understood but a gradual and natural Evolution and Growth of the parts; not any Metamorphosis or Transformation of them: which Growth is here made to resemble, not only the Increase of other Animals, but also the Budding, Knitting and Spreading of Plants. And here the Author, having taken notice, that, whereas Antient and Famous Writers, have esteem'd and called the *Nympha*, among Insects, the Change of that Worm, which carries the proper shape of the future little Animal; and the *Chrysalis* or *Aurelia* the Change of that Caterpillar, which shews no parts at all of the Animal to come; having, I say, noted this, desires the Reader to observe, that, whereas he is able to discern and to shew all the parts or members of the future Animal cle, as well in the *Chrysalis*, as the *Nympha*, he makes no other difference amongst them, but this, That since the

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the parts in a *Chrysalis*, are not so plainly discernable to our view, as those in a *Nympha*, and because a *Chrysalis* does sometimes appear of a Gilt-colour, which he hath not hitherto observ'd in a *Nympha*, he calls the *Nympha*, barely by the name of *Puppet*, and the *Chrysalis* by that of *Gilt-puppet*: the distinction of which is made very clear by the neat and accurate Cuts annexed, and their Explication. In this *First part* is set forth the manner, how the *Worms* and *Caterpillars* turn into *Puppets*; and shewed, that some Insects come perfect out of the Egg, and never out of a *Puppet*; that the principal difference of the *Worm-animalcula*, that turn into *Puppets*, consists in this, that some have feet, some have none; that the breast of the footless *Worms* is never changed; that the six fore-feet of the *Worms* with many or few feet are never changed or transposed; that the *Wings*, *Horns*, *Feet*, &c. grow up under the skin by degrees; that in all *Worms* he can easily shew the said parts under the skin, affirming, to have done it actually in the presence of Seignieur *Magalotti*, and Monsieur *Thevenot*, Two very Intelligent and Cautious persons; and that even a *Frog* comes forth into a *Puppet*.

Secondly, This Book undertaketh to make it out, How the true Ground of the Natural *Changes*, or the Knowledge of the *Nympha* and *Aurelia* hath been obscured and marred; shewing withal, how it is to be cleared and restored again. Where he affirms, that *Mouffet* and others do erre about the *Aurelia*, making it neither an Egg, nor an Animal; and that *Harvey* mistaketh, calling the *Aurelia* (which indeed is the Animal it self,) an Egg, and affirming, that *Bloudless Animalcula* are produced out of *Aurelia's* by Transformation; whereas the Change, happening in the *Puppets*, is nothing else but an Evaporation of the superfluous moisture. Further, that *Goedartus* erres, holding, that a *Caterpillar* may change before her time; and that, if she so changes, she then produceth another Animal: Contrary whereunto our Author affirms, that these *Animalcula*, which the said *Goedartus* mentions, as changing against the order of nature, do *always* come forth in that manner, viz. The Male with wings, and the Female without them: Observing further, That *Caterpillars* early forbearing to eat, come only to turn into smaller bodied Animals; and adding, that they may change when they will; and that the Animals, when once changed, do never grow bigger. And from the knowledge of the propagation of these *Animalcula*, he is of opinion, that we may arrive to that of the Propagation of the rest of Animals; where he declareth his sentiment, that there is no *Generation* in Nature, but only a Production by the Growing of parts; adding this assertion, that he is able both to shew all the parts of a *Butterfly* in a *Caterpillar*, and to make the change of the *Caterpillar* to proceed leisurely, and so to stop it in its change, that it shall appear half *Caterpillar*, and half *Aurelia*; which he saith, he hath actually performed before the now Great Duke of *Tuscany*.

Thirdly, This Author reduceth all *Changes* of Insects, (some few excepted, which he acknowledgeth he doth not yet well understand,) into Four Classes or Ranks; which are discriminated by four different ways of Production

Production, Change and Growth. The *first* Rank, by him called *Nympha-Animal*, hath a little Animal fully formed in the Egg, which after the evaporation of the superfluous moisture, comes forth perfect and so groweth up; such as the *Locust* and *Flea*, &c. The *second* called *Nympha-Vermiculus*, hath the parts of the Insect imperfectly shaped in the Egg, and after hatching acquires its perfection *Visibly* by outward food; such as the *Locust* and *Cricket*, &c. The *third*, called *Nympha-Chrysalis* or *Aurelia*, obtains after hatching, its perfection *darkly*, and not till the last casting of the skin; such as the *Emmet*, and *Night-butterfly*: So that in the *second* and *third* *Classis* not a perfect *Animal*, but a *Worm*, precedes the growing up of the parts; yet with this difference, that in the *second*, the little Creature groweth up manifestly; which in the *third* is done obscurely: The *fourth*, called *Nympha-vermiformis*, remains always shut up in the skin of the Worm, without a possibility of discerning the parts, till casting both skins at once, it becoms capable of generation; such as the *Fly*.

In the Explication and Deduction of all which differences, the Author taketh notice of many remarkable particulars: *E.g.* That the Insects, which come perfect out of their Eggs, change only by casting their skin, and those that come forth imperfect, do, besides skin-casting, grow up by food, to become *Nympha's* or *Puppets*: That those, which come perfect or imperfect out of the Egg, are in the Egg first like *Puppets*, and undergo, both of them in the Egg, all the alterations, which any Insect undergoeth in the *Puppet*: That the parts of *Puppets* protuberate, much like the Budding of Flowers: That the *Caterpillar* is the *Butterfly* it self, only covered over with a mantle, whereby the parts are kept from our discerning: That the doctrine of *Seigneur Malpighi*, in his *Dissertation de Bombyce* (dedicated to the *R. Society*,) concerning the Change of *Butterflies*, is true: That innumerable Insects fly about and feed by night, as well as others do by day: That *Snails* discharge their excrements by the neck, and are each of them, both Male and Female: That from *Caterpillars*, feeding on such and such plants, conjectures may be drawn concerning the agreement of the respective qualities of them; it being very probable, that, if those Creatures do eat of several plants (each sort of those Insects being esteem'd, to feed but on one sort of Vegetables) those Plants do agree in their nature and virtues, &c.

Those Insects, which the Author can as yet reduce to no *Classis*, are;

<i>Cicindela.</i>		<i>Scarabeus pilularius.</i>
<i>Scolopendra.</i>		<i>Hydrocantharis.</i>
<i>Julus.</i>		<i>Hydrocantharis minimus.</i>
<i>Curculio.</i>		<i>Scorpio.</i>

III. The *C R E E D* of *M. H O B B E S*, Examined by *M. Tenison*.
London, 1670. in 8°.

PASSING by the several particulars, which concern *Morality* and *Policy*, discussed in this Book, as not belonging to these Tracts, which are principally

principally designed to give an Account of such Occurrences as are of a Physical and Mathematical nature ; We shall only take notice of the Ingenious Confutation, made by this Author, of what M. *Hobbes* hath delivered concerning the *Rational Soul*, and *Perception in Matter* ; Where (in my opinion) it is strongly evinced, That the *Soul of man* is something else, than the Organized Body in due motion ; and that 'tis altogether unconceivable and therefore most un-philosophical, that *Matter* should be capable of Perception, Cogitation, and Discourse. In the doing of which, our Author descends to particulars, making it out, that *Sensation* is not made by Motion or Reaction in meer Matter ; nor that Imagination, Memory, much less Reason, are meerly Mechanical ; refuting also that Dogme, which maketh Reason nothing but an apt joyning of Names. All which seems to be performed with so much force, that it appears not, what in reason can be rejoyned thereto ; which yet is not said without a ready submission to better judgments.

IV. *FRANCISCI JOSEPHI BURRHI Epistolæ duæ ad Thomam Bartholinum.* Hafniæ, 1669. in 4°.

His small Tract being but very lately sent out of *Denmark* to the Publisher, he thought fit to give forthwith the following Account of it.

These two Letters of *Signeur Burrhi* are an Answer to two others, which M. *Bartholin* had written to him touching sundry considerable and curious Subjects of Natural Philosophy and Medicine.

In the *former* he endeavours to explain, How the *Brain* is formed, and what kind of Substance it is : In the doing of which he observeth, That as many Salts, dissolved together in common water, are sever'd by a simple Distillation ; and as divers Mettals melted together into one masse are un-mixed from one another, when a certain degree of heat is given them ; so the different parts, which constitute the *Seed*, although they be so blended together that 'tis impossible to distinguish them, do dis-engage themselves from one another when they are agitated by a competent Heat ; and taking the situation which is natural to them, give rise to the several Organs of the Body. The direct and the most massy, by their weight going to the Center, form the *Heart* ; the spongy, the *Lungs* ; the bituminous, the *Liver* and the fatty and oily, as the highest, rising above the rest, form the *Brain*, &c. Where he takes notice, that *Hippocrates* holds the *Brain* to have little of Oylines in it, because it will not flame ; whereas he assures, that having distilled the *Brain* of a Calf, he drew from it a considerable quantity of Oyl : which (to note that by the by) being applyed outwardly, is by him recommended as excellent to appease the pains of the *Gout*.

In the same Letter he affirms, that in the *Brain* there is made a certain very subtile and well-scented liquor, which he believes to be the Seat of the Reasonable Soul ; and that the Wit of men depends on the Temper of this Liquor, rather than from the Conformation of the *Brain* : Which he confirms by the Example of one, who by taking great store of *Tobacco*,

had so dried up his Brain, that after his death there was found in his Head but a very small black clod, composed of fundry membrans; and yet his Soul had not been wanting to perform her functions to the last.

He also takes occasion to discourse of *Respiration*, adventuring to affirm, that Respiration is caused by divers liquors, which rising through the Veins into the Heart, and there fermenting, send to the Lungs such Vapors as attract the Air: For illustration whereof, he saith, That, if to a Glasse-bowl, hollow and with a small hole, you sodder divers Pipes of Glasse half full of different strong Liquors, the Vapours, elevated from those Pipes in the glasse-bowl, will draw the Air after the same manner as tis drawn into the Lungs by Respiration.

In the *other* Letter, he treats of the way of curing several Distempers of the Eyes, and particularly of some surprizing ones, cured by himself. Where he affirms, that, having cut asunder the Apple of the Eye of divers Animals, and squeezed out the humors even the *ChrySTALLIN* it self, he hath restored the sight to those Animals; and that the Eyes of those Birds, on which he had made this Experiment, looked better and more vivid than before; and that he had performed this operation upon many persons with so much success, that in their Eyes there remained not the least appearance of a Scar. After this relation he is not shy to teach the way of making this Operation, adding the cautions to be observed therein, and withall the Remedy it self; which consists chiefly in a certain Water of *Celandine*, and a Phlegme of *Vitriol of Mars*.

On the occasion of teaching the Preparation of this remedy, he taketh notice of several particulars, perhaps not to be despised: First, That if about a pint of Water be poured on ten pounds of Filings of Iron, fresh and fine, and after having well stirr'd it with one's hand, you cover the vessel, wherein it is, and wrap it about with some dry stuff, these Filings will, within the space of an hour and an half, ferment and grow hot, like *Calx viva*. Secondly, That having often quenched in Water an Ingot of fine Gold, heated red hot, he hath found the weight of that Gold notably diminish'd; and having afterwards suffered the Water to evaporate, drawn a little Gold thence; which (he saith) shews, that the most subtile parts of the Gold pass into the liquors, wherein it is quenched; whence it is (he adds) that such liquors have admirable vertues, to cure many Diseases: And amongst others he pretends, that in *Dysenteries* there is no better Remedy, than Rose-water, wherein Gold hath been quenched. Thirdly, That in the Resolution of *Simples*, an excellent means of preserving their proper vertues is, instead of using Fire or any other strange Heat, which might alter their vertues, to employ only the Warmth of an Hot-bed made of the Putrefaction of the Herbs of the same *Species* with those you would Distil.